MX965GME

Intel Core 2 Duo Mini-ITX Mainboard

Users Manual

1st Edition – 8 November 2007

Avalue Technology Inc.

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.
OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

Copyright Notice

Copyright © 2007 Avalue Technology Inc., ALL RIGHTS RESERVED.
No part of this document may be reproduced, copied, translated, or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the prior written permission of the original manufacture

Trademark Acknowledgement

Brand and product names are trademarks or registered trademarks of their respective Owners

Disclaimer

Avalue Technology Inc. reserves the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. Avalue Technology assumes no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright, or masks work rights to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. Avalue Technology Inc. makes no representation or warranty that such application will be suitable for the specified use without further testing or modification.

Life Support Policy

Avalue Technology's PRODUCTS ARE NOT FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE PRIOR WRITTEN APPROVAL OF Avalue Technology Inc.
As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into body, or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual first.

To receive the latest version of the user's manual; please visit our Web site at: http://www.avalue.com.tw/

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Avalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone. In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or email us.

Headquarters
Avalue Technology Inc.
7F, 228, Lian-cheng Road,
Chung Ho City, Taipei,
Taiwan
Tel : +886-2-8226-2345
Fax : +886-2-8226-2777
http://www.avalue.com.tw
E-mail: service@avalue.com.tw

US Branch Office
Avalue Technology Inc.
Suite 210, 200 Tornillo Way,
Tinton Falls, NJ 07712
USA
Tel: +1-732-578-0200
Fax: +1-732-578-0250
http://www.avalue.com.tw
E-mail: service.usa@avalue.com.tw

Europe Branch Office
Avalue Europe A/S
Nordre Strandvej 13,
3480 Fredensborg,
Denmark
Tel : +45-7025-0310
Fax : +45-4975-5026
http://www.avalue.com.tw
E-mail: service.europe@avalue.com.tw

China Branch Office
Avalue Technology Shanghai Inc.
Room 909, 9F, Section B, No.900,
Yisan Road, Caohejing Hi-tech Park,
Shanghai 200233, China
Tel : +86-21-5423-4170
Fax : +86-21-5423-4171
http://www.avalue.com.tw
E-mail: service.china@avalue.com.tw

Product Warranty

Avalue warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.
This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.

3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.

4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Table of Contents

FCC Statement	2
Copyright Notice	2
Disclaimer	3
Life Support	3
Technical Support	4
Product Warranty	5
Chapter 1: Product Overview	
Specifications	8
Layout	10
Chapter 2: Hardware Setup	
Component Location	12
CPU	13
Memory	14
Power Supply	15
Back Panel	16
Connectors	18
Jumpers	26
Expansion	27
Chapter 3: BIOS Setup	
Entering Setup	30
Menu	32
Advanced	34
Boot	45
Security	49
Chipset	50
Exit	54

Chapter 1

Getting Started

Thank you for choosing the MX965GME Mini ITX mainboard from Avalue.

Based on the innovative Intel® GME965 & ICH8M controllers for optimal system efficiency, the MX965GME accommodates the latest Intel® Core 2 Duo/Celeron® M 5XX series processors in Socket P and supports two 240-pin 533/667MHz DDRII DIMM to provide the maximum of 4GB memory capacity. In the entry-level and mid-range market segment, the MX965GME can provide a high-performance solution for today's front-end and general purpose workstation, as well as in the future.

Mainboard Specifications

Processor

- Intel Core 2 Duo/Celeron M 5xx CPU in Socket P
- Supports 3-pin CPU fan pin-header with Fan Speed Control
- Supports Intel Dual Core Technology to 533/800MHz and up

Supported FSB

- 533/800MHz

Chipset

- North Bridge: Intel GM965/GME965 chipset
- South Bridge: Intel ICH8M chipset

Memory

- DDR2 533/667 SDRAM (4GB Max)
- 2 DDR2 DIMM slots (240pin / 1.8V)

LAN

- Supports 2 Gb Ethernet by Intel 82573L & 82566DC

Audio

- HDA Codec by Realtek ALC888 7.1 channel
- Compliant with Azalia 1.0 specs
- 6 watt amplifier

IDE

- 1 IDE port by ICH8M
- Supports Ultra DMA 66/100 mode
- Supports PIO, Bus Master operation mode

SATA

- SATA II ports by ICH8M
- Supports two SATA II devices
- Supports storage and data transfers at up to 300MB/s

Connectors

Back Panel

- 1 HDMI connector
- 2 RJ-45 LAN jacks and 4 USB 2.0 ports
- 1 D-Sub VGA and 1 DVI connector
- 1 serial port
- 1 PS2 keyboard/mouse port
- 3 audio jacks

Connectors (Cont.)

Onboard Connectors

- 2 USB 2.0 connectors (4 ports)
- 1 parallel port connector
- 1 applifer connector (4-pin)
- 1 LVDS connector
- 1 TV-out connector
- 1 digital I/O connector (16GPIO)
- 1 serial port connector
- 1 front panel connector

Expansion

- 1 PCI Express x4 slot (optional)
- 1 Mini PCI-E slot
- 1 PCI 32-bit/33MHz slot
- 1 CF socket

Form Factor

- Mini ITX: 170mm x 170mm

Mounting

- 4 mounting holes

Environment

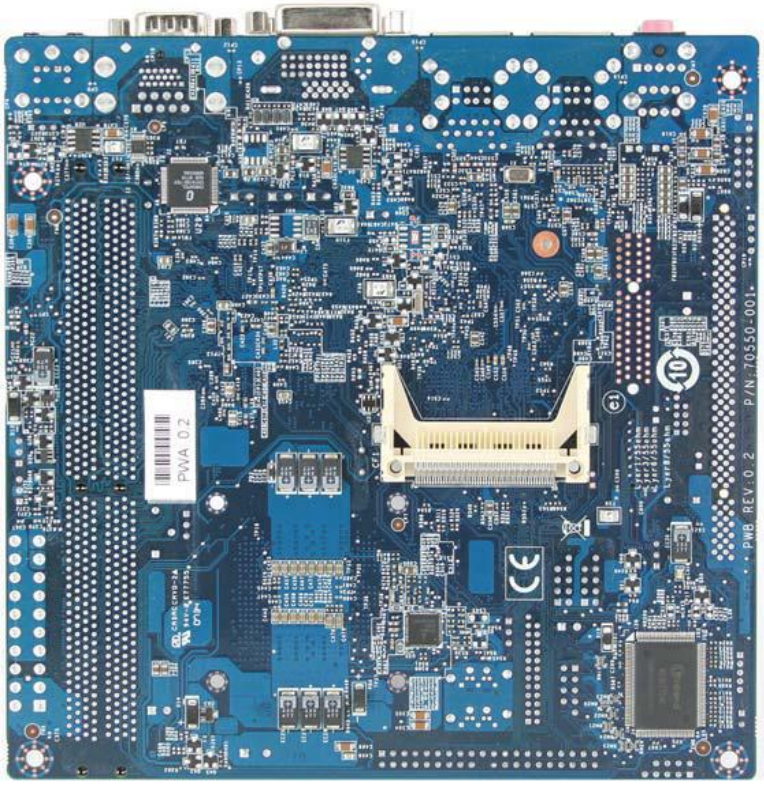
Storage Temperature

- Temperature: -20 ^{O} C ~ 80 ^{O} C
- Humidity: 0% RH ~ 95% RH

Operation Temperature

- Temperature: 0 ^{O} C ~ 55 ^{O} C
- Humidity: 0% RH ~ 85% RH

intel
RoHS
Compliant
PWA
0 2

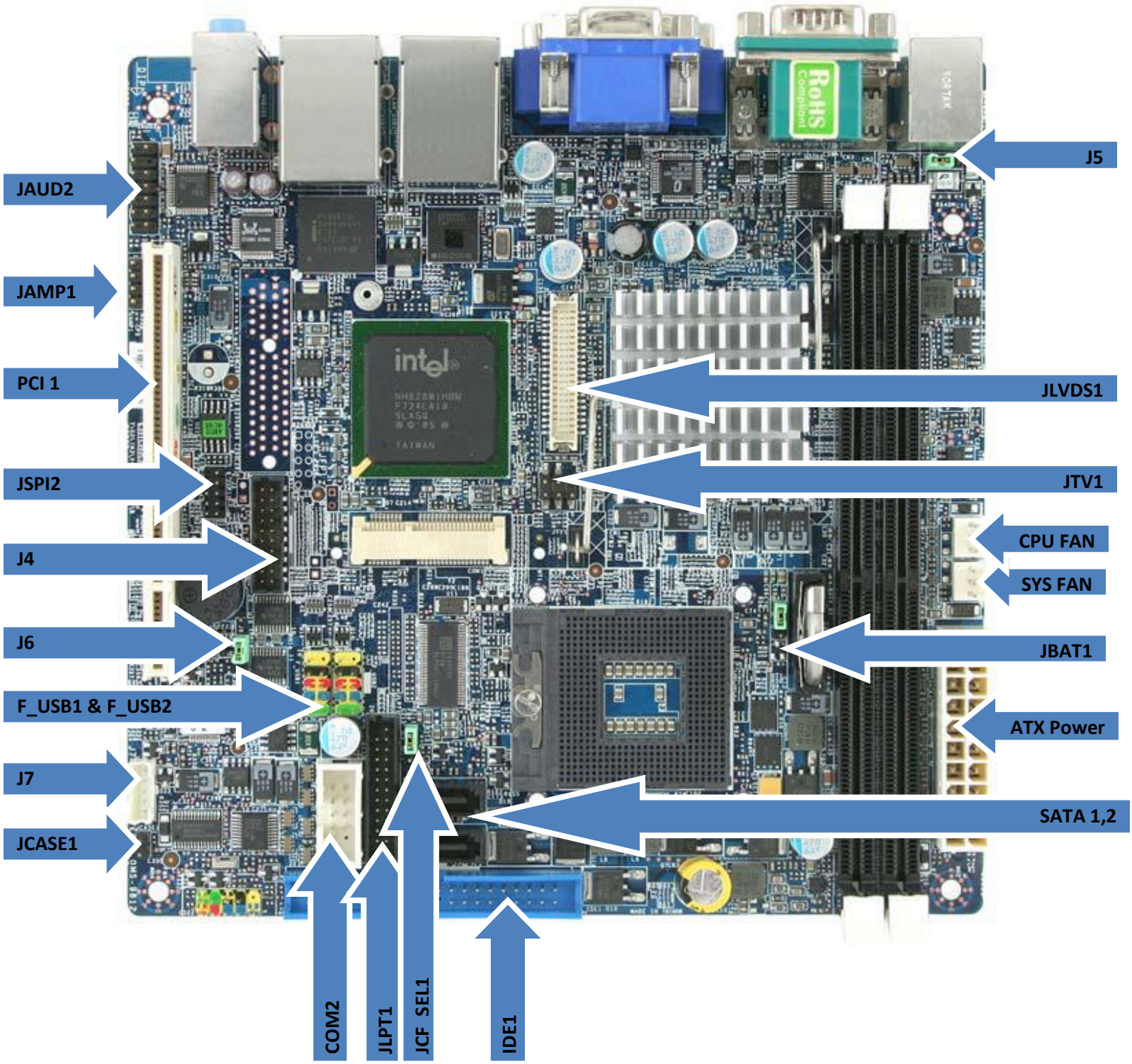

PWA 0 2
P/N:70550-001
PWB REV: 0.2

Chapter 2

Hardware Setup

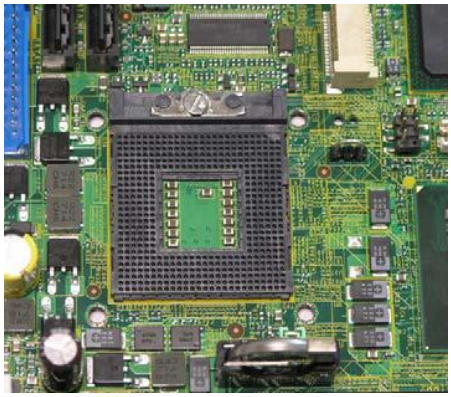
This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly. Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

MX965GME


JAUD2
JAMP1
PCI 1
JSPI2
J4
J6
F_USB1 & F_USB2
J7
JCASE1
COM2
JLPT1
JCF_SEL1
IDE1
J5
JLVDS1
JTV1
CPU FAN
SYS FAN
JBAT1
ATX Power
SATA 1,2

CPU & Cooler Installation for Socket P

1. Locate the CPU socket on the mainboard.



2. Place the CPU on top of the socket. Make sure to align the gold arrow on the CPU with the arrow key on the socket.

3. Push the CPU down until its pins securely fit into the socket.

4. On the front end of the CPU socket is a locking mechanism designed into the form of a screw head. Make sure that you actuate or deactuate this mechanism with a screwdriver before and after installing the CPU.

Memory

The DIMM slots are intended for system memory modules.

DDR2
240-pin,1.8V

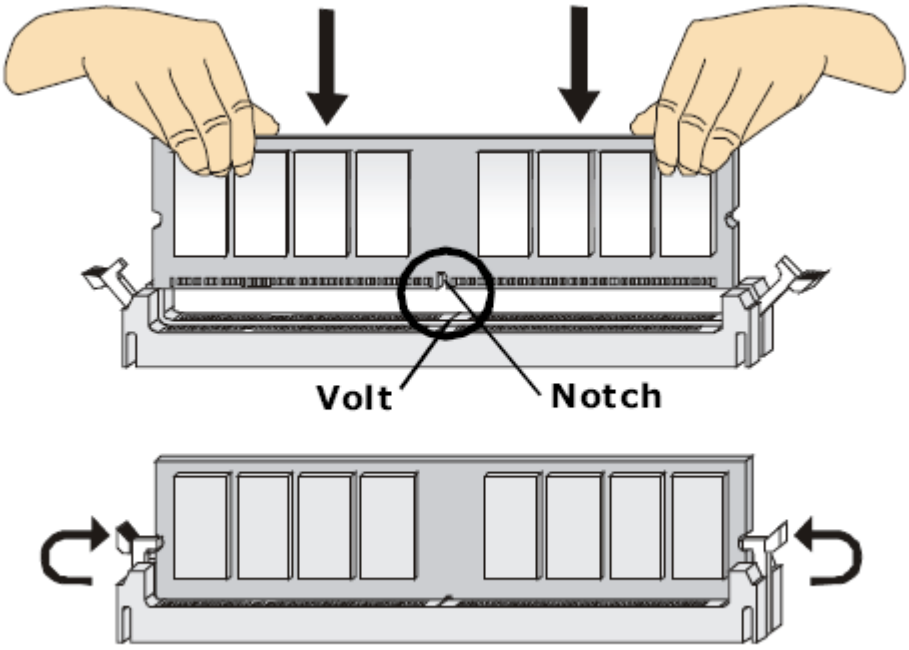
Installing DDR2 Modules

1. The memory module has only one notch on the center and will only fit in the right orientation.

2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.

NOTE: *You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.*

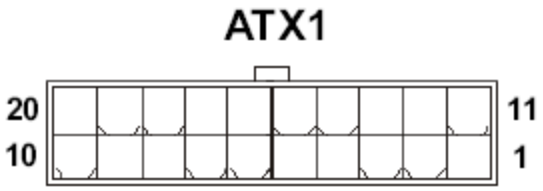
3. The plastic clip at each side of the DIMM slot will automatically close.



Power Supply

ATX 20-Pin System Power Connector: ATX1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

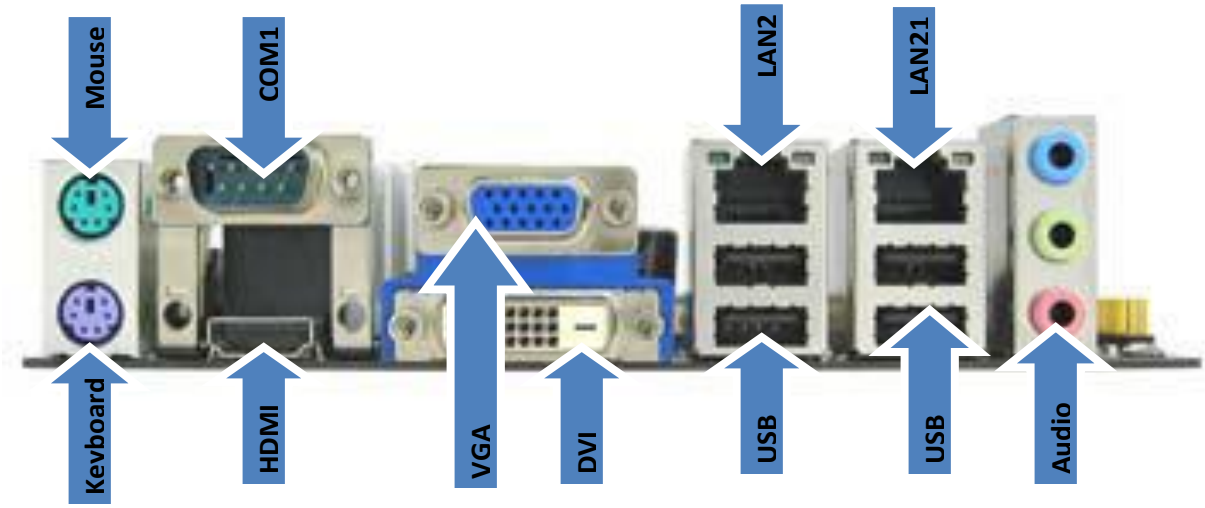


ATX1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

NOTE: *Power supply of **350watts** (and above) is highly recommended for system stability.*

Back Panel I/O



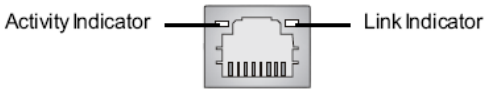
Mouse/Keyboard
The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

Serial Port
The serial port is a 16550A high speed communications port that sends/ receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

VGA Port
The DB15-pin female connector is provided for monitor.

USB Port
The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

LAN
The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



LED	Color	LED State	Condition
Left	Orange	Off	LAN link is not established.
		On (steady state)	LAN link is established.
		On (brighter & pulsing)	The computer is communicating with another computer on the LAN.
Right	Green	Off	10 Mbit/sec data rate is selected.
		On	100 Mbit/sec data rate is selected.
	Orange	On	1000 Mbit/sec data rate is selected.

Audio Ports
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

Line-In (Blue) - Line In / Side-Surround Out in 7.1 channel mode, is used for external CD player, tape player or other audio devices.

Line-Out (Green) - Line Out, is a connector for speakers or headphones.

Mic (Pink) - Mic, is a connector for microphones.

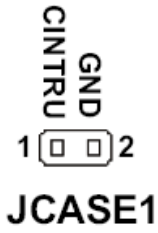
HDMI and DVI Ports
This The HDMI and DVI ports are for digital video output.

Note: It is not recommended to use a HDMI-to-DVI adaptor on HDMI port

Connectors

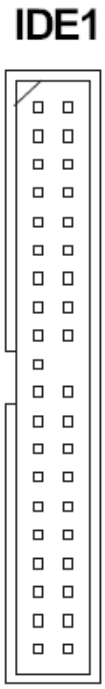
Chassis Intrusion Connector: JCASE1

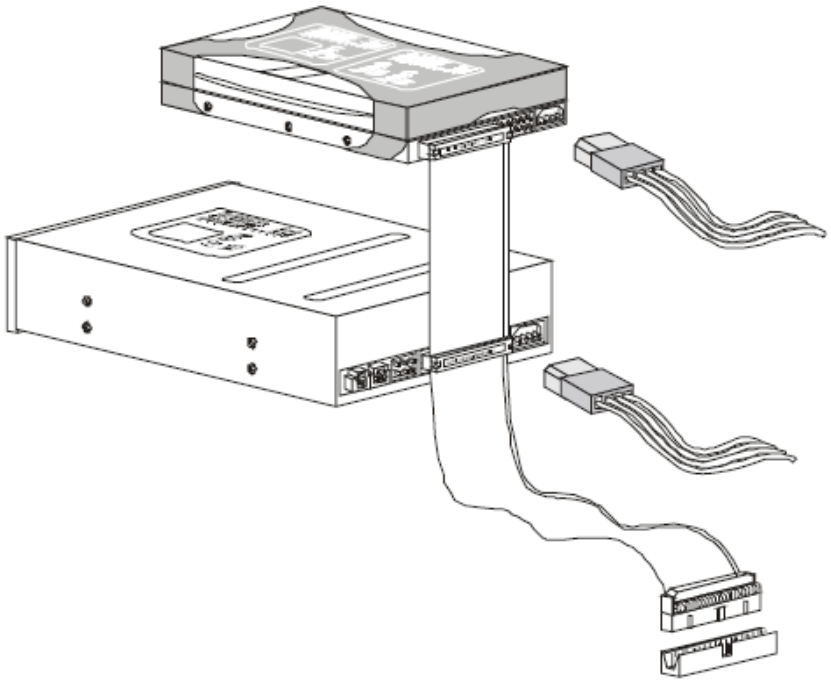
This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



IDEConnector: IDE1

This connector supports IDE hard disk drives, optical disk drives and other IDE devices.

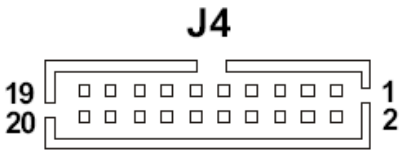




NOTE: *If you install two IDE devices on the same cable, you must configure the drives separately to master / slave mode by setting jumpers. Refer to IDE device's documentation supplied by the vendors for jumper setting instructions.*

Digital IO Connector: J4

The J4 is designed to connect the General-Purpose Input/Output (GPIO) peripheral module.

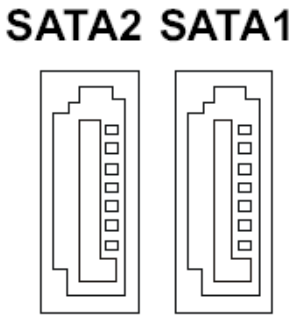


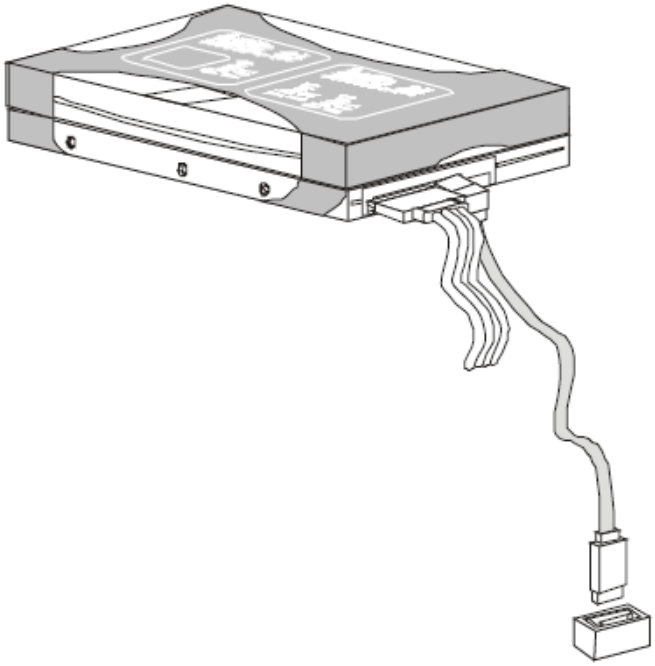
Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC3	2	VCC5
3	N_GPIO10	4	N_GPIO20
5	N_GPIO11	6	N_GPIO21
7	N_GPIO12	8	N_GPIO22
9	N_GPIO13	10	N_GPIO23
11	N_GPIO14	12	N_GPIO24
13	N_GPIO15	14	N_GPIO25
15	N_GPIO16	16	N_GPIO26
17	N_GPIO17	18	N_GPIO27
19	GND	20	NC

Serial ATA II Connector: SATA1, SATA2

This connector is a high-speed Serial ATA II interface port. Each connector can connect to one Serial ATA II device.





NOTE: *Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.*

Audio Amplifier Connector: JAMP1

The JAMP1 is used to connect audio amplifiers to enhance audio performance.

PIN	SIGNAL
1	AMP_L-
2	AMP_L+
3	AMP_R-
4	AMP_R+

SPI Flash ROM Connector: JSPI2

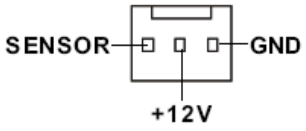
This connector is used to flash SPI flash ROM.

Pin Definition

Pin	Description	Pin	Description
1	VCC3_SB	2	VCC3_SB
3	SPI_MISO_F	4	SPI_MOSI_F
5	SPI_CS0_F#	6	SPI_CLK_F
7	GND	8	GND
9	SPI_HOLD#	10	NC

Fan Power Connectors: CPUFAN1, SYSFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



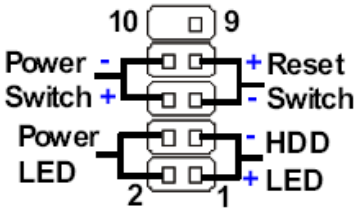
CPUFAN1, SYSFAN1

NOTE: *Please refer to the recommended CPU fans at Intel® official website or consult the vendors for proper CPU cooling fan.*

Front Panel Connector: JFP1

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

JFP1



JFP1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	HD_LED +	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED -	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW -	Reset Switch low reference pull-down to GND
6	PWR_SW +	Power Switch high reference pull-up
7	RST_SW +	Reset Switch high reference pull-up
8	PWR_SW -	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

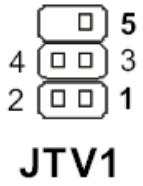
TV-Out Connector: JTV1

This connector is for you to attach an optional TV-Out bracket that offers two types of TV-Out connectors: S-Video and RCA Composite connectors. Select the appropriate one to connect the standard television or the HDTV (High-Definition Television).

Display Matrix (For Windows Display)

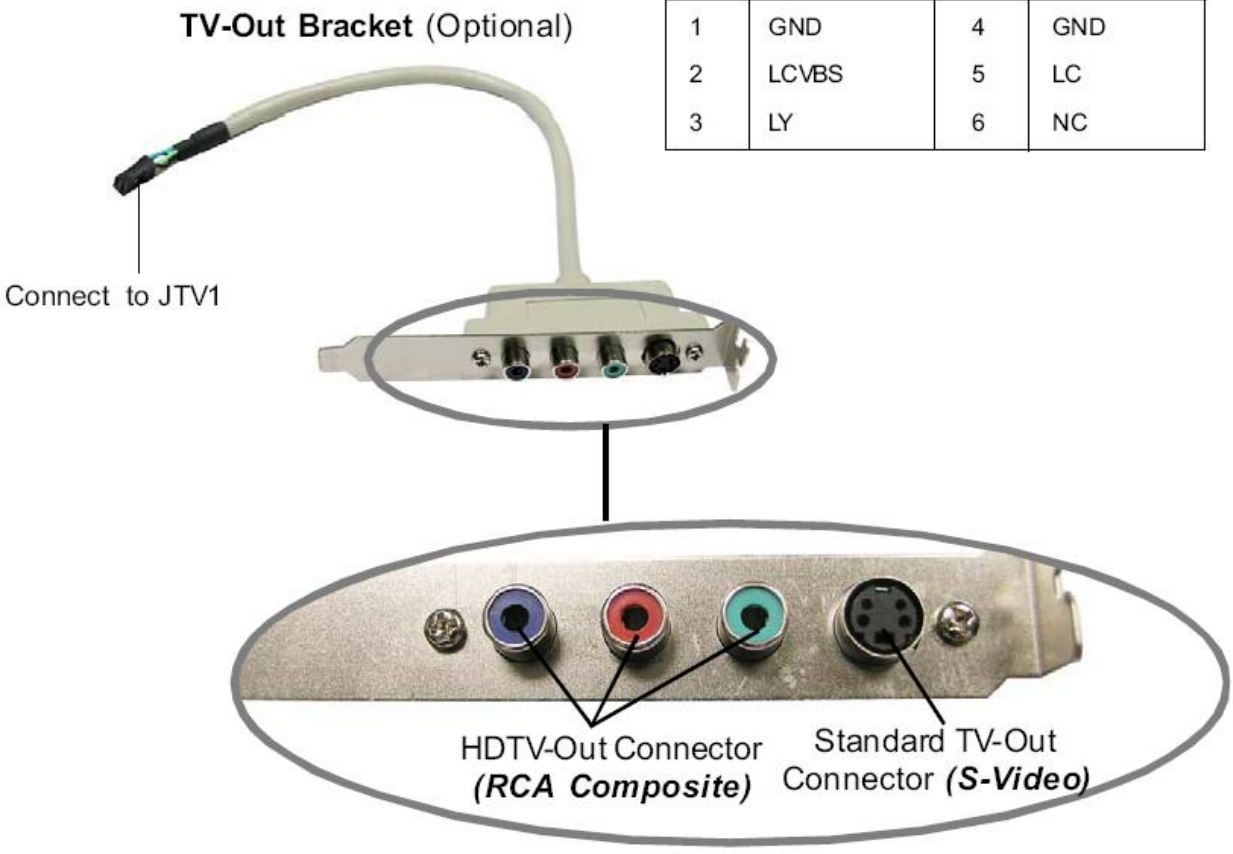
	CRT	LVDS	TV-OUT	HDMI	DVI (Digital)
CRT		V	V	V	V
LVDS	V		V	V	V
TV-OUT	V	V		V	V
HDMI	V	V	V		V
DVI	V	V	V	V	

V : Support



Pin Definition

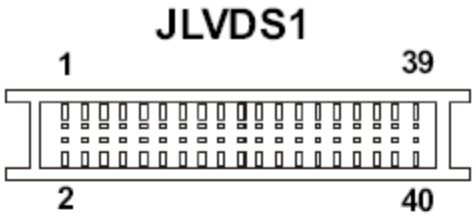
Pin	Description	Pin	Description
1	GND	4	GND
2	LCVBS	5	LC
3	LY	6	NC



NOTE: *Please note that the TV-Out bracket can connect to one TV only. Users have to choose either the RCA Composite or the S-Video to connect. Simultaneously connecting two TVs to this bracket is prohibited and may lead to the malfunction of the TVs.*

LVDS Flat Panel Connector: JLVDS1

The LVDS (Low Voltage Differential Signal) connector provides a digital interface typically used with flat panels.



LVDS Connector (JLVDS1)

Signal	Pin	Pin	Signal
VDD_SAFE3	2	1	VDD_SAFE3
VDD_SAFE5	4	3	VDD_SAFE5
DDC_DATA	6	5	DDC_CLK
GND	8	7	GND
LA_DATA0	10	9	LA_DATA1
LA_DATA0#	12	11	LA_DATA1#
GND	14	13	GND
LA_DATA2	16	15	LA_DATA3
LA_DATA2#	18	17	LA_DATA3#
GND	20	19	GND
LB_DATA0	22	21	LB_DATA1
LB_DATA0#	24	23	LB_DATA1#
GND	26	25	GND
LB_DATA2	28	27	LB_DATA3
LB_DATA2#	30	29	LB_DATA3#
GND	32	31	GND
LA_CLK	34	33	LB_CLK
LA_CLK#	36	35	LB_CLK#
GND	38	37	GND
+12V	40	39	+12V

Front USB Connector: F_USB1, F_USB2

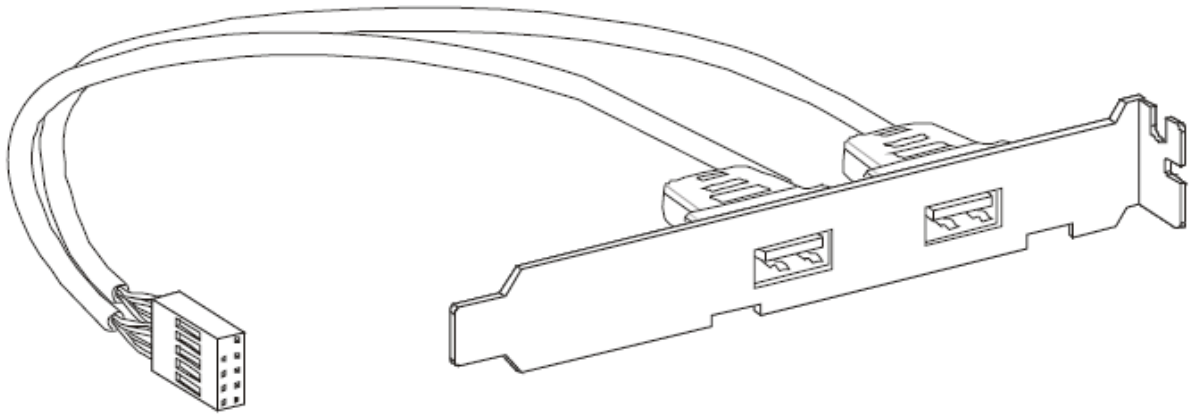
This connector, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.

F_USB1/2

Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	NC

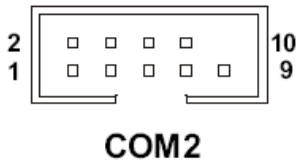
USB 2.0 Bracket
(Optional)



NOTE: *The pins of VCC and GND must be connected correctly to avoid possible damage.*

Serial Port Connector: COM 2

This connector is a 16550A high speed communications port that sends/receives 16 bytes FIFOs. You can attach a serial device to it through the optional serial port bracket.



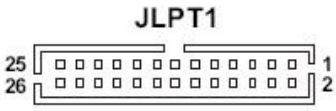
COM2

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	VCC_COM3	Power Source

Parallel Port Connector: JLPT1

The mainboard provides a 26-pin header for connection to an optional parallel port bracket. The parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



Pin	Signal Name	Pin	Signal Name
1	RSTB#	2	AFD#
3	PRND0	4	ERR#
5	PRND1	6	PINIT#
7	PRND2	8	LPT_SLIN#
9	PRND3	10	GND
11	PRND4	12	GND
13	PRND5	14	GND
15	PRND6	16	GND
17	PRND7	18	GND
19	ACK#	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	GND

Parallel/Serial Port Bracket

Jumpers

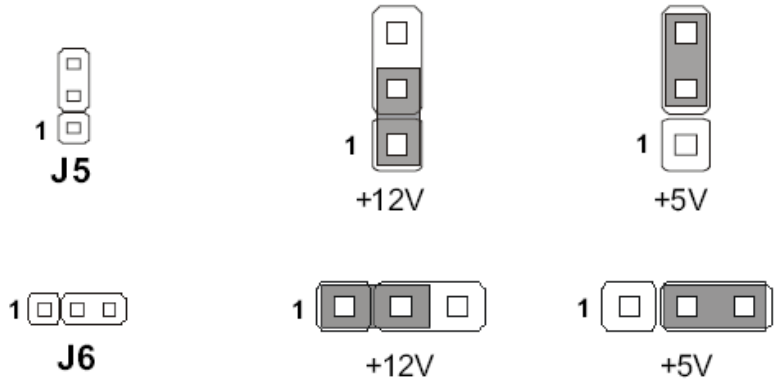
Inverter Power/ Control Connector: J7

Provide the Power and brightness control to the inverter and output to LVDS panel.

Pin	Signal
1	12V
2	GND
3	INV_ON
4	BKLT_CTRL
5	VCC5

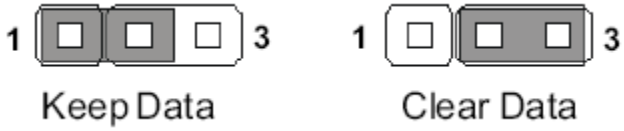
COM Port Power Jumpers: J5, J6

These jumpers specify the operation voltage of the onboard serial ports.



Clear CMOS Jumper: JBAT1

There is a CMOS RAM onboard that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set this jumper to clear data.



NOTE: *You can clear CMOS by shorting 1-2 pin while the system is off. Then return to 2-3 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.*

Expansion

PCI (Peripheral Component Interconnect) Express Slot

The PCI Express slot supports PCI Express interface expansion cards. The PCI Express x 4 slot supports up to 2.0 GB/s transfer rate. The CON1 is Mini PCI-E connector for wireless LAN, TV tuner, and Robson NAND Flash.

PCI Express x4 Slot (Optional)

Mini PCI-E Slot

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.

32-bit PCI Slot

PCI Interrupt Request Routing

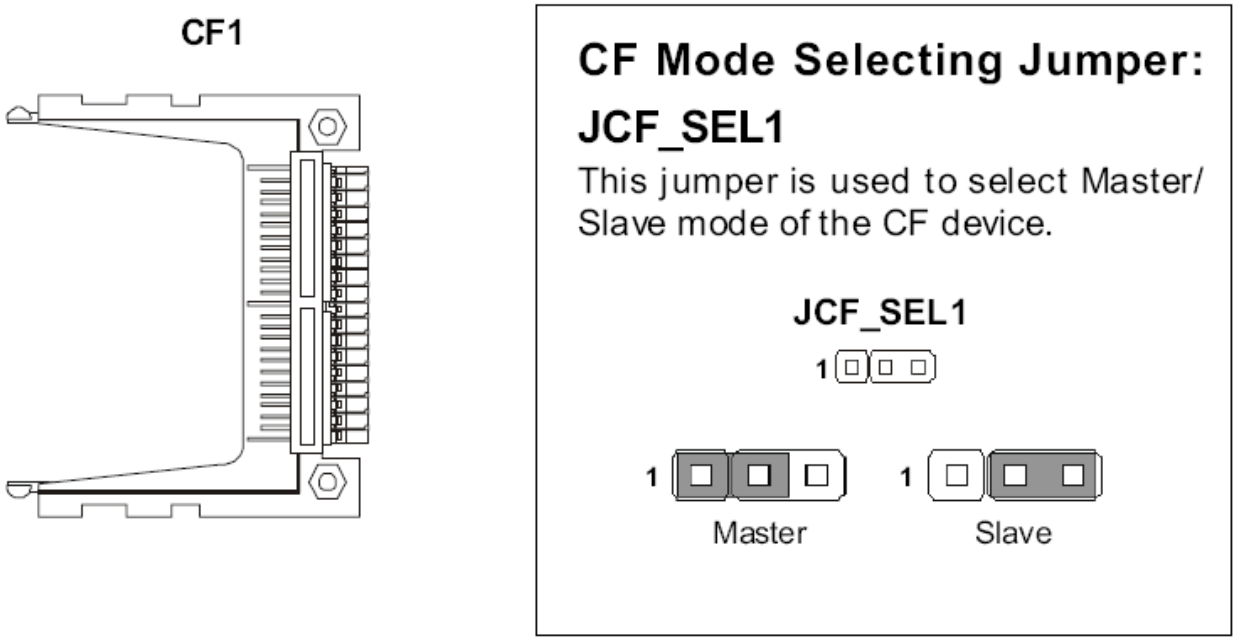
The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

DEVICE	INT Pin	IDSEL	CLOCK	REQ# / GNT#
32-bit PCI Slot	PIRQA	AD17	PCICLK 0	REQ#0 / GNT#0
32-bit PCI Riser	PIRQC	AD18	PCICLK 1	REQ#1 / GNT#1
32-bit PCI Riser	PIRQD	AD19	PCICLK 2	REQ#2 / GNT#2

NOTE: *When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.*

Compact Flash Card Slot: CF1

This Compact Flash slot shares one channel of the IDE controller. You can install one Compact Flash type I / type II device.



NOTE:

The CF1 slot and the IDE1 connector shares and uses the same channel. CF1 and IDE1 can support up to 2 IDE devices without CF device or 1 IDE device with 1 CF device.

** If you install two IDE devices, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.*

** If you install one IDE device with ATA133 IDE cable and one CF device, you must configure the CF drive to Master mode by setting jumper JCF_SEL1. CF only supports Master mode by using the ATA133 IDE cable.*

** CF only supports Slave mode by using ATA33 IDE cable.*

Chapter 3

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use. You may need to run the Setup program when:

- An error message appears on the screen during the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <Del> key to enter Setup.

Press Del to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

NOTE:
1. The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.
2. Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:

MX965GME #70551 BIOS V1.0 where:
1st word refers to model name.
2nd word refers to the model number.
V1.0 refers to the BIOS version.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F6>	Load Optimized Defaults
<F7>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (□ □) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

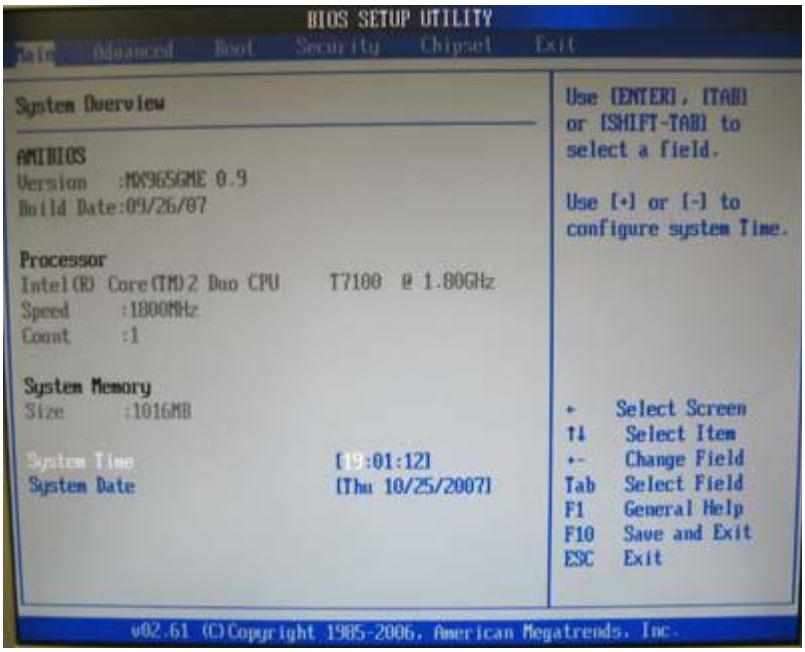
Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

Menu Bar



Main
Use this menu for basic system configurations, such as time, date etc.

Advanced
Use this menu to set up the items of special enhanced features.

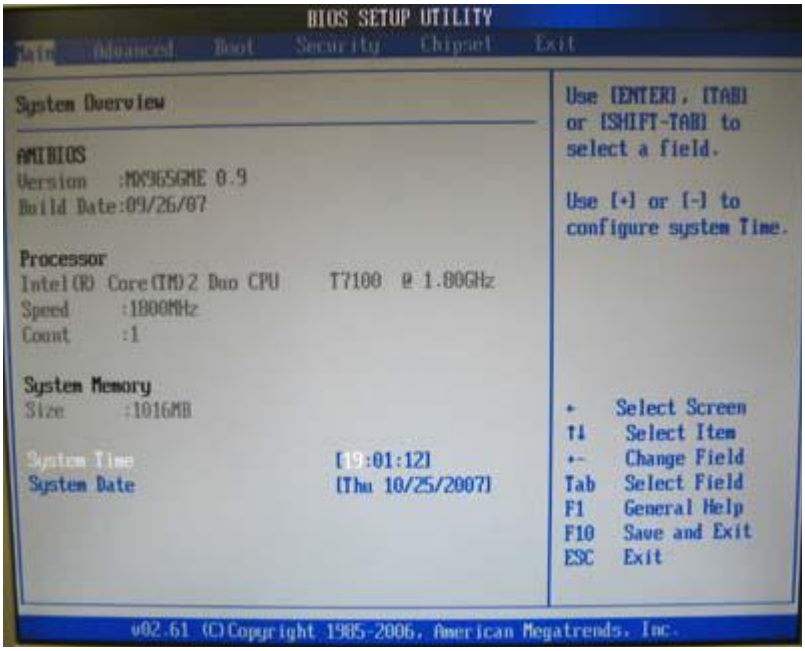
Boot
Use this menu to specify the priority of boot devices.

Security
Use this menu to set supervisor and user passwords.

Chipset
This menu controls the advanced features of the onboard Northbridge and Southbridge.

Exit
This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

Main

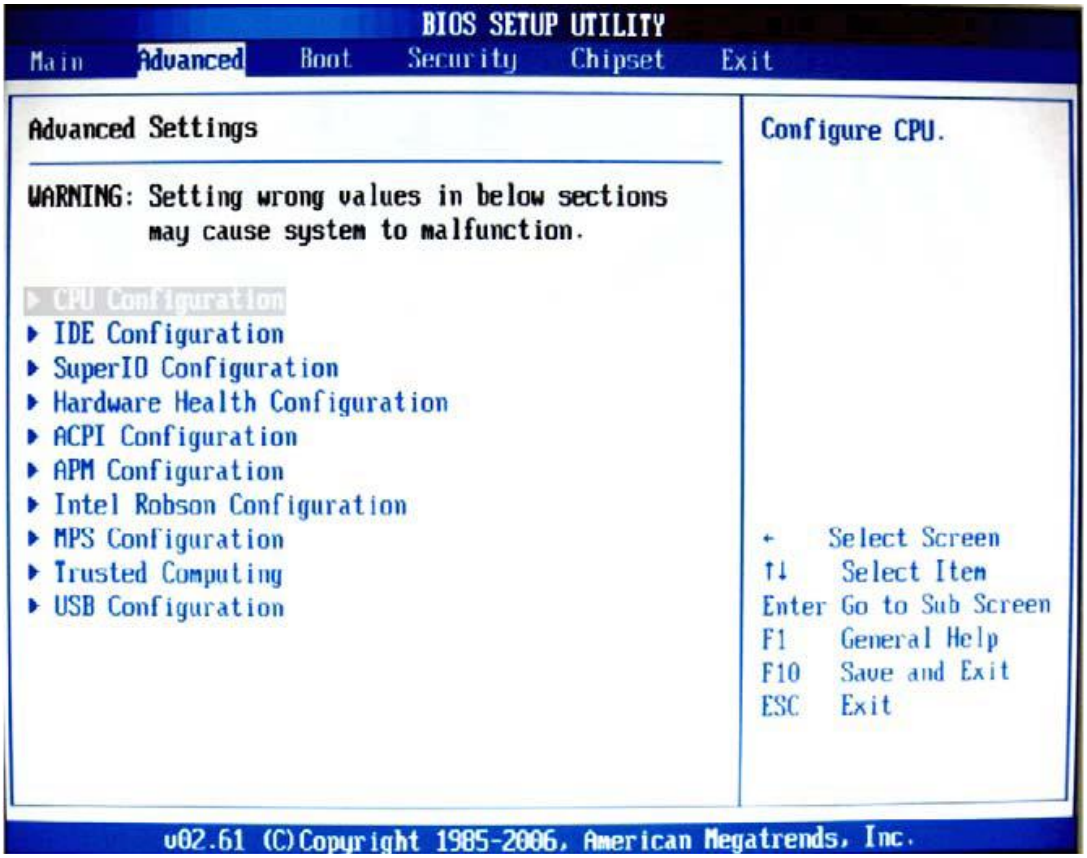


AMI BIOS, Processor, System Memory
These items show the firmware and hardware specifications of your system. Read only.

System Time
The time format is <Hour> <Minute> <Second>.

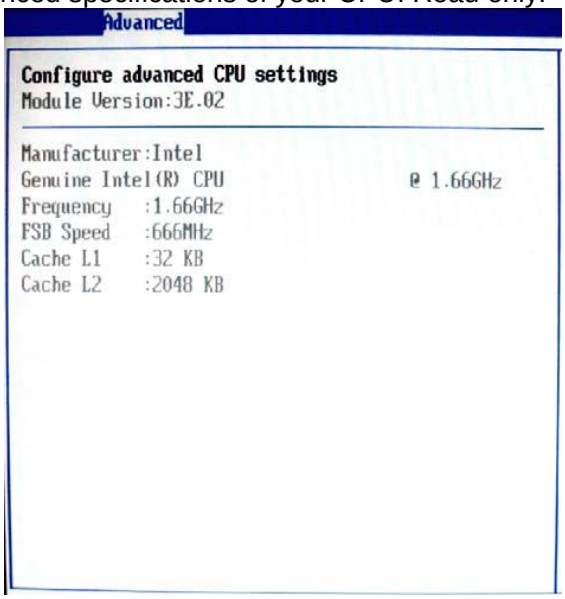
System Date
The date format is <Day>, <Month> <Date> <Year>.

Advanced

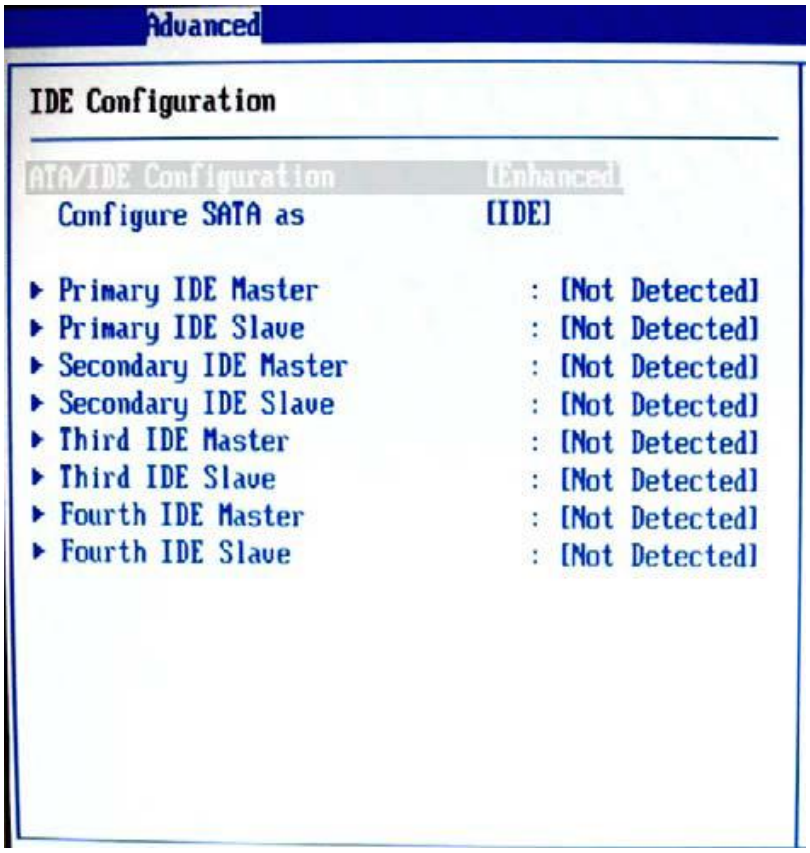


CPU Configuration

These items show the advanced specifications of your CPU. Read only.



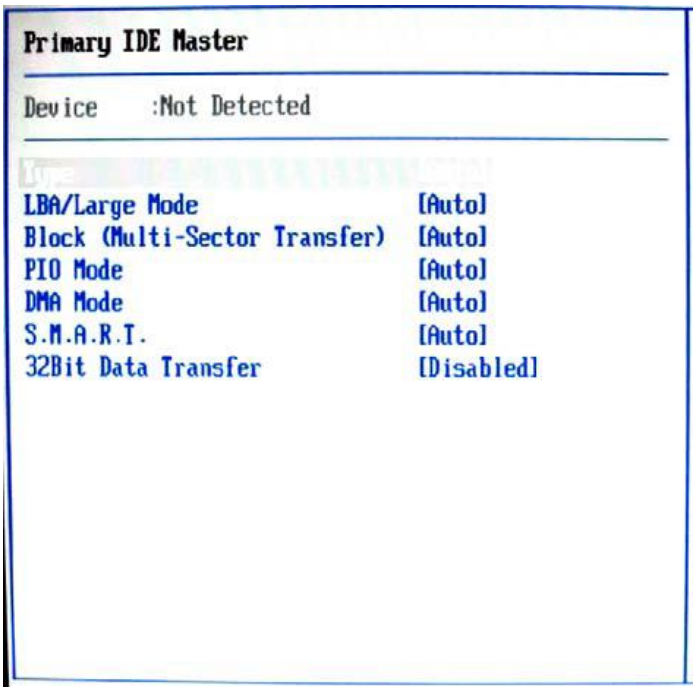
IDE Configuration


Advanced
IDE Configuration
ATA/IDE Configuration [Enhanced]
Configure SATA as [IDE]
Primary IDE Master : [Not Detected]
Primary IDE Slave : [Not Detected]
Secondary IDE Master : [Not Detected]
Secondary IDE Slave : [Not Detected]
Third IDE Master : [Not Detected]
Third IDE Slave : [Not Detected]
Fourth IDE Master : [Not Detected]
Fourth IDE Slave : [Not Detected]

ATA/IDE Configuration
This setting specifies the modes of the PATA & SATA ports.

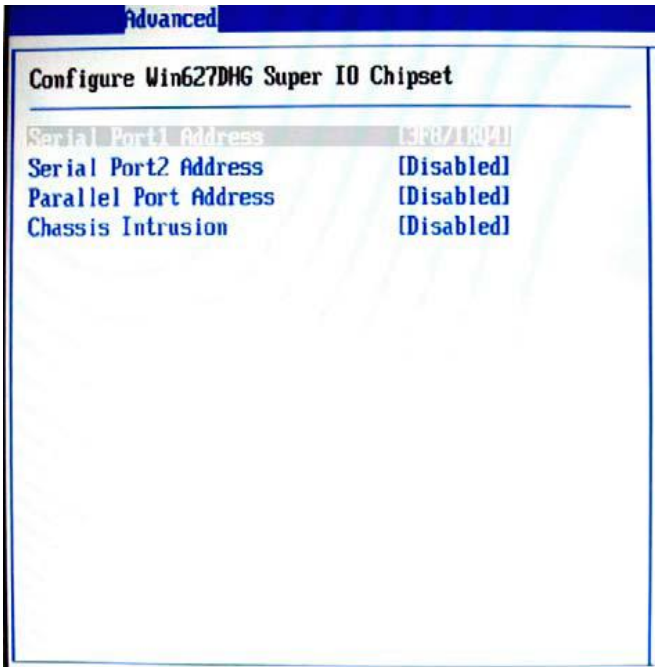
Configure SATA as
This setting specifies the function of the on-chip SATA controller.

Primary/Secondary/Third/Fourth IDE Master/Slave



Type	Press PgUp/<+> or PgDn/<-> to select [Manual], [None] or [Auto] type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use [Manual] to define your own drive type manually.
LBA/Large Mode	Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors
Block (Multi-Sector Transfer)	Any selection except Disabled determines the number of sectors transferred per block
PIO Mode	Indicates the type of PIO (Programmed Input/Output)
DMA Mode	Indicates the type of Ultra DMA
S.M.A.R.T.	This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.
32 Bit Data Transfer	Enables 32-bit communication between CPUand IDEcard

Super IO Configuration

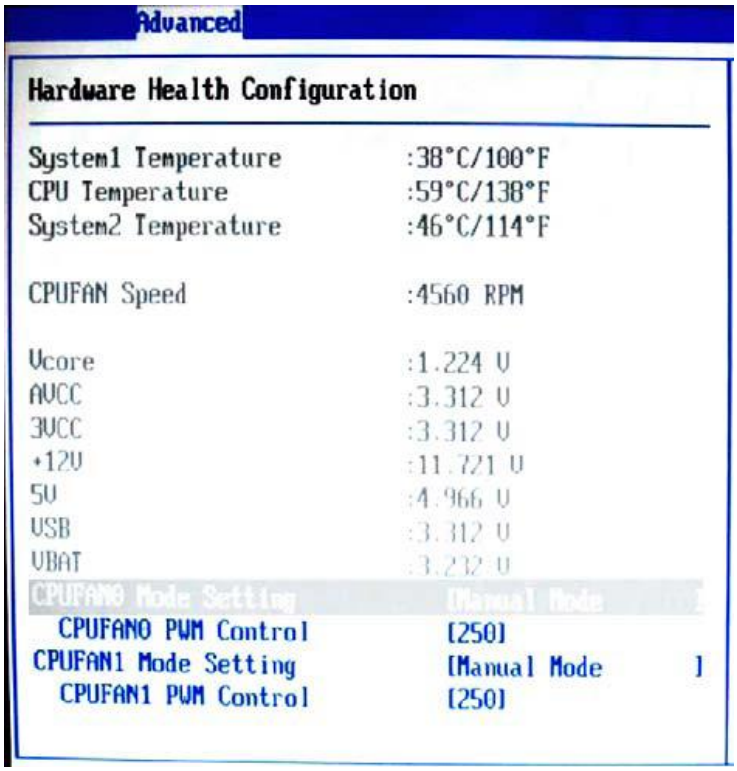


Serial Port 1 / 2 Address
Select an address and a corresponding interrupt for the serial port 1/2.

Parallel Port Address
This setting specifies the I/O port address and IRQ of the onboard parallel port.

Chassis Intrusion
The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later.

Hardware Health Configuration

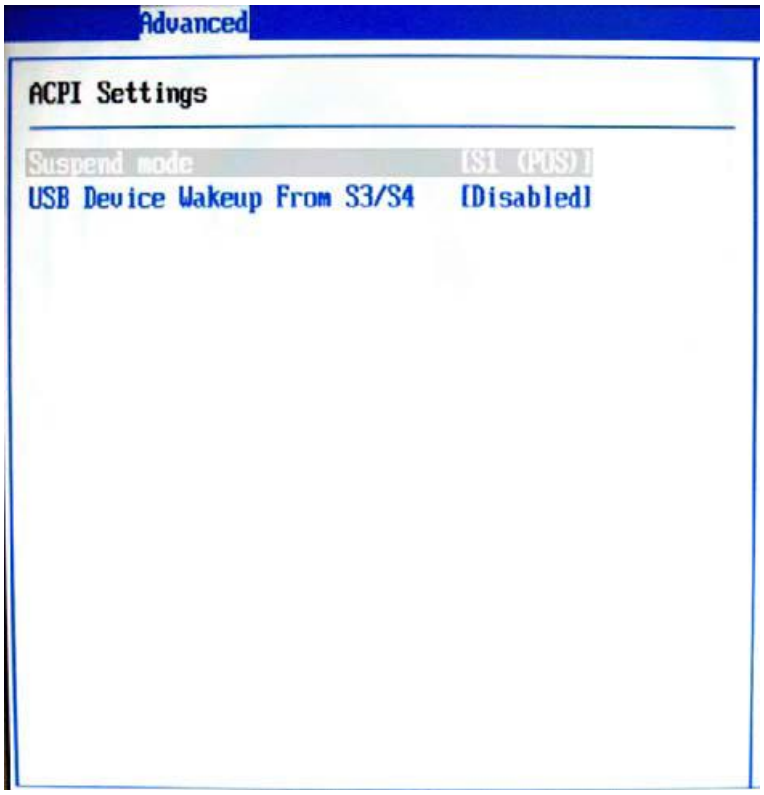


System 1 / 2 Temperature, CPU Temperature, CPUFAN Speed, Vcore, AVCC, 3VCC, +12V, 5V, VSB, VBAT
These items display the current status of all of the monitored hardware devices/ components such as CPU voltage, temperatures and all fans' speeds.

CPUFAN0 / CPUFAN1 Mode Setting
These settings specify the operation mode of the CPU fans.

CPUFAN0 / CPUFAN1 PWM Control
These settings control the PWM duty cycle of the CPU fans.

ACPI Configuration



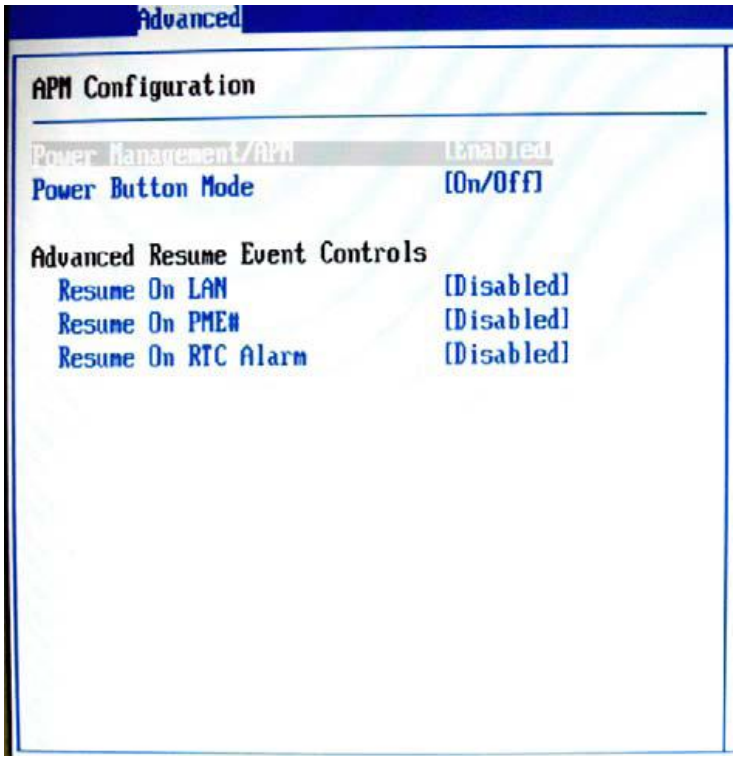
Suspend Mode
This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:

[S1 (POS)]
The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

[S3 (STR)]
The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a “wake up” event occurs.

USB Device Wakeup from S3/S4
This setting allows the activity of the USB device to wake up the system fromS3/S4 sleep state.

APM Configuration



Power Management/APM
Setting to [Enabled] will activate an Advanced Power Management (APM) device to enhance Max Saving mode and stop CPU internal clock.

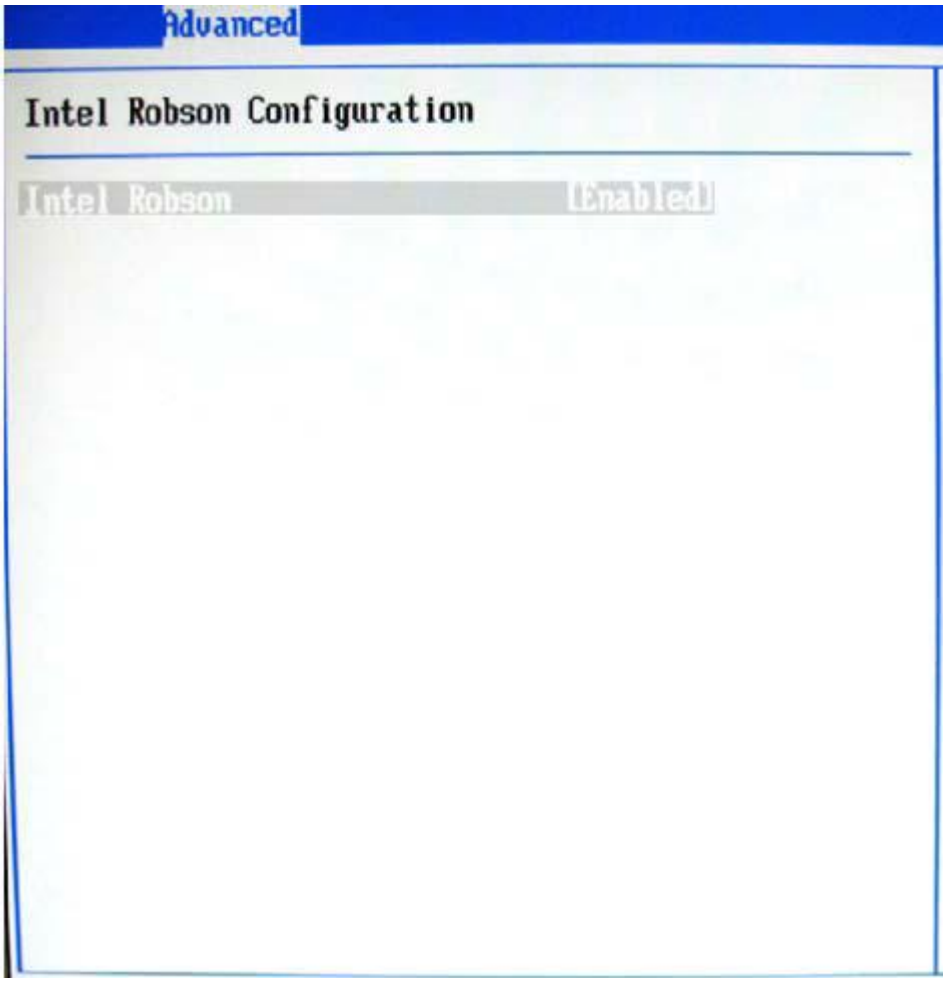
Power Button Mode
This setting controls the operation of the power button.

Resume On LAN
This field specifies whether the system will be awakened from power saving modes when activity or input signal of onboard LAN is detected.

Resume On PME#
When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

Resume On RTC Alarm
When [Enabled], you can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

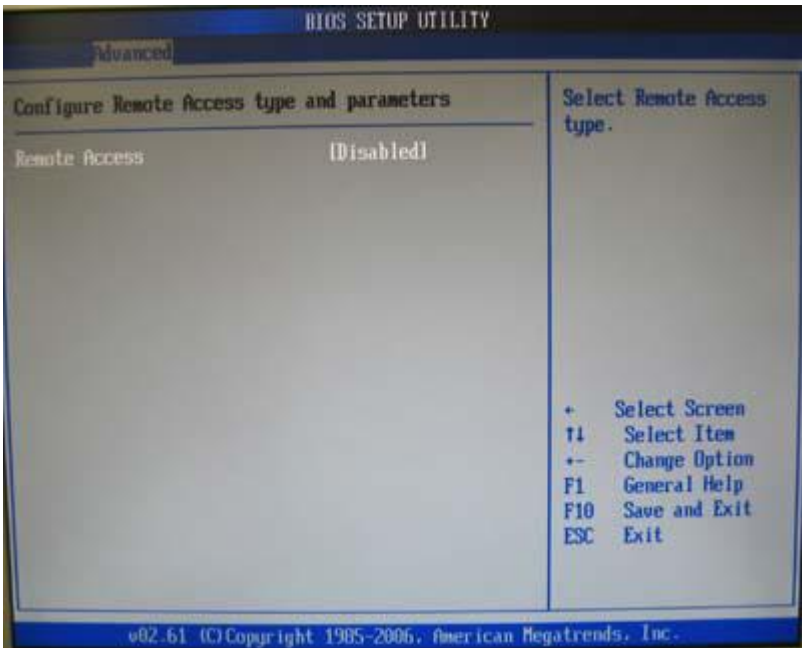
Intel Robson Configuration



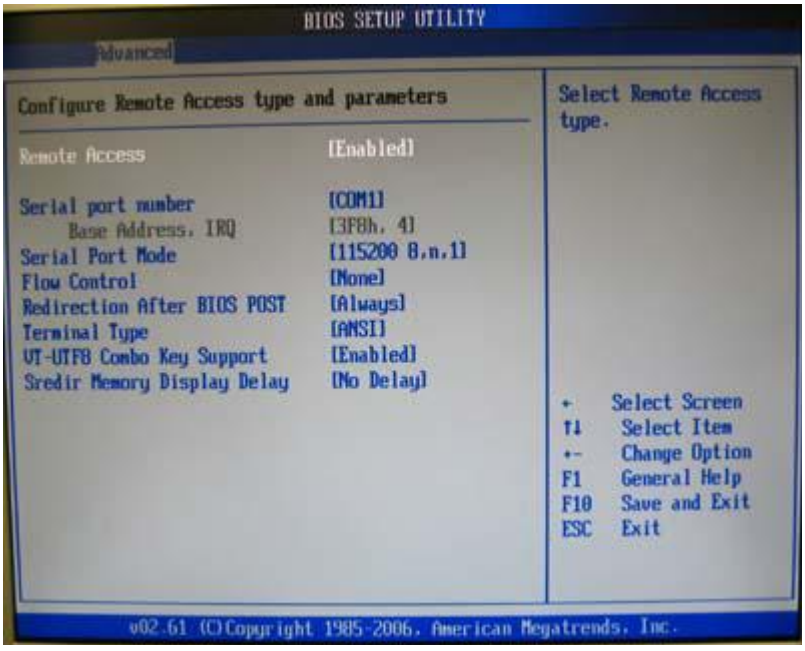
Intel Robson

Robson is the code name for a new Intel platform technology that uses nonvolatile memory (Flash memory) to increase system responsiveness, make multi-tasking faster, and extend battery life. Intel Robson technology is poised to eliminate many of the bottlenecks associated with HDD latency. By enabling the majority of application workload to be written and read from a system cache instead of the HDD, Robson will offer users of mobile computers built on the Santa Rosa platform significantly increased performance -- particularly in application load and run time, the speed in which systems resume operation after hibernation or boot, and in system-level power usage.

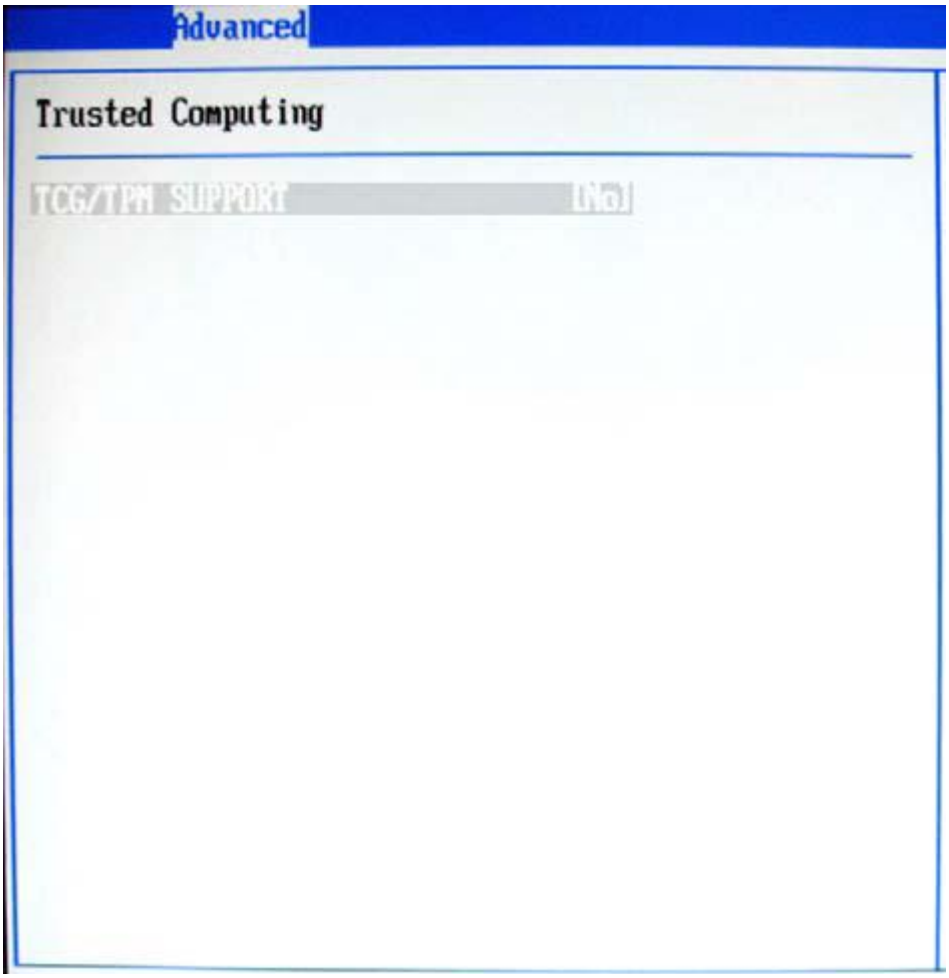
Remote Access Configuration



Remote Access
This field allows you to Enabled or Disabled Remote Access for console redirection via serial ports. Set the desired port and setting in each field.



Trusted Computing



TCG/TPM Support
This setting controls the Trusted Platform Module (TPM) designed by the Trusted Computing Group (TCG). TPMs are special-purpose integrated circuits (ICs) built into a variety of platforms to enable strong user authentication and machine attestation—essential to prevent inappropriate access to confidential and sensitive information and to protect against *compromised networks.*

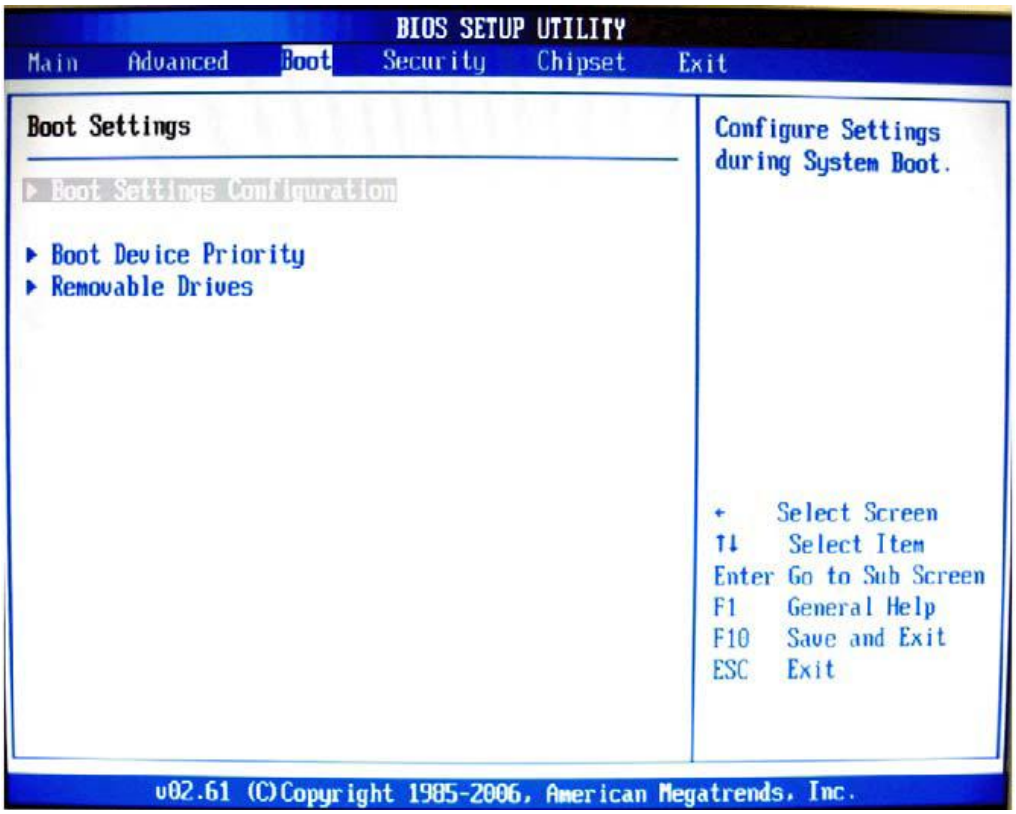
USB Configuration

Legacy USB Support
Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix.

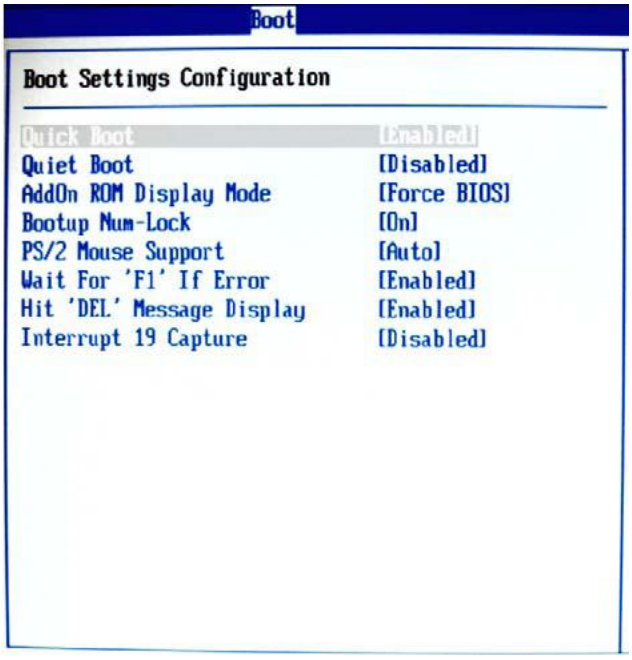
USB 2.0 Controller Mode
This setting specifies the operation mode of the onboard USB 2.0 controller.

Hot plug USB FDD Support
Set to [Enabled] if your need to use a hot plug USB-interfaced FDD in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix.

Boot



Boot Settings Configuration



Quick Boot
Enabling this setting will cause the BIOS power-on self test routine to skip some of its tests during bootup for faster system boot.

Quiet Boot
This BIOS feature determines if the BIOS should hide the normal POST messages with the motherboard or system manufacturer's full-screen logo. When it is enabled, the BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages. When it is disabled, the BIOS will display the normal POST messages, instead of the full-screen logo. Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

Add On ROM Display Mode
This item is used to determine the display mode when an optional ROM is initialized during POST. When set to [Force BIOS], the display mode used by AMI BIOS is used. Select [Keep Current] if you want to use the display mode of optional ROM.

Bootup Num-Lock
This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

PS/2 Mouse Support
Select [Enabled] if you need to use a PS/2-interfaced mouse in the operating system.

Wait For 'F1' If Error
When this setting is set to [Enabled] and the boot sequence encounters an error, it asks you to press F1. If disabled, the system continues to boot without waiting for you to press any keys.

Hit 'DEL' Message Display
Set this option to [Disabled] to prevent the message as follows:

Hit Del if you want to run setup
It will prevent the message from appearing on the first BIOS screen when the computer boots. Set it to [Enabled] when you want to run the BIOS Setup Utility.

Interrupt 19 Capture
Interrupt 19 is the software interrupt that handles the boot disk function. When enabled, this BIOS feature allows the ROM BIOS of these host adaptors to "capture" Interrupt 19 during the boot process so that drives attached to these adaptors can function as bootable disks. In addition, it allows you to gain access to the host adaptor's ROM setup utility, if one is available. When disabled the ROM BIOS of these host adaptors will not be able to "capture" Interrupt 19. Therefore, you will not be able to boot operating systems from any bootable disks attached to these host adaptors. Nor will you be able to gain access to their ROM setup utilities.

Flash Write Protection
Select [Enabled] if you need to program data into the flash chip.
Select [Disabled] if you need to protect the data from being overwritten.

Chassis Instruction
Select [Enabled] to enable the chassis instruction function.
Select [Disabled] to disable the chassis instruction function.
Select [Reset] to clear the chassis instruction status.

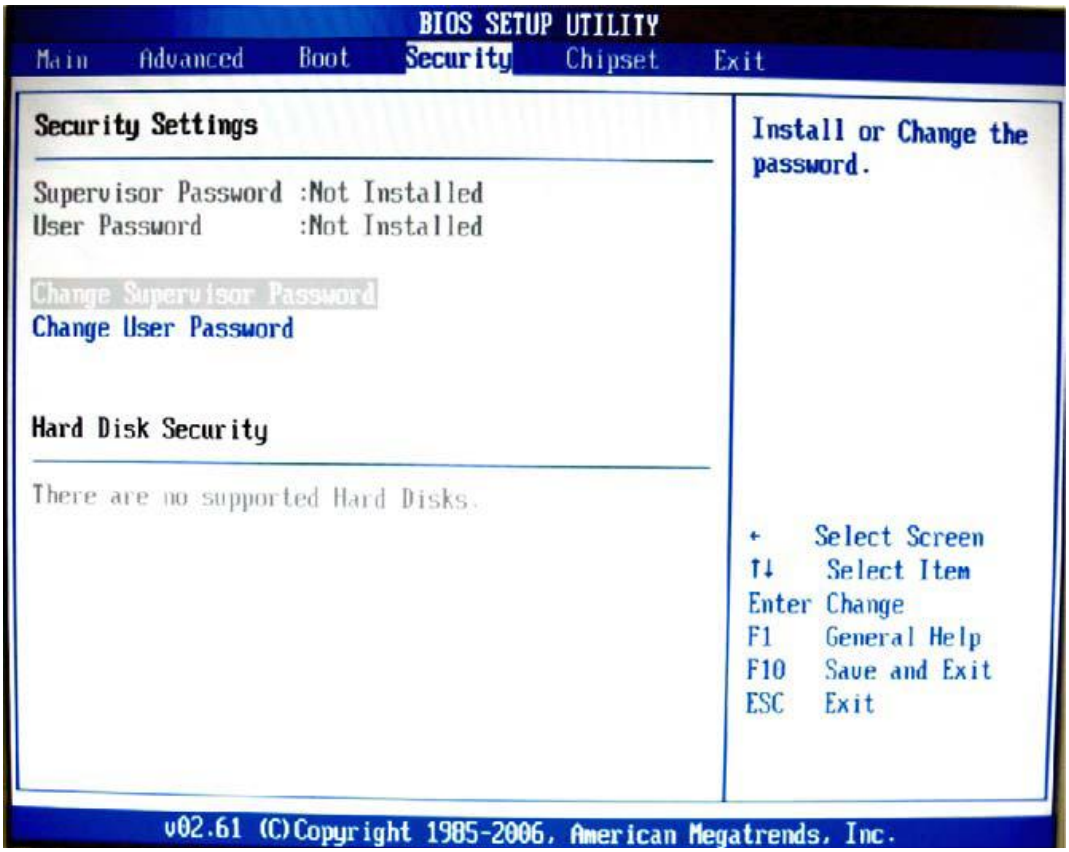
Boot Device Priority

1st Boot Device
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the
priority list.

Removable Drives

1st Drive
This setting allows users to set the priority of the removable devices. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

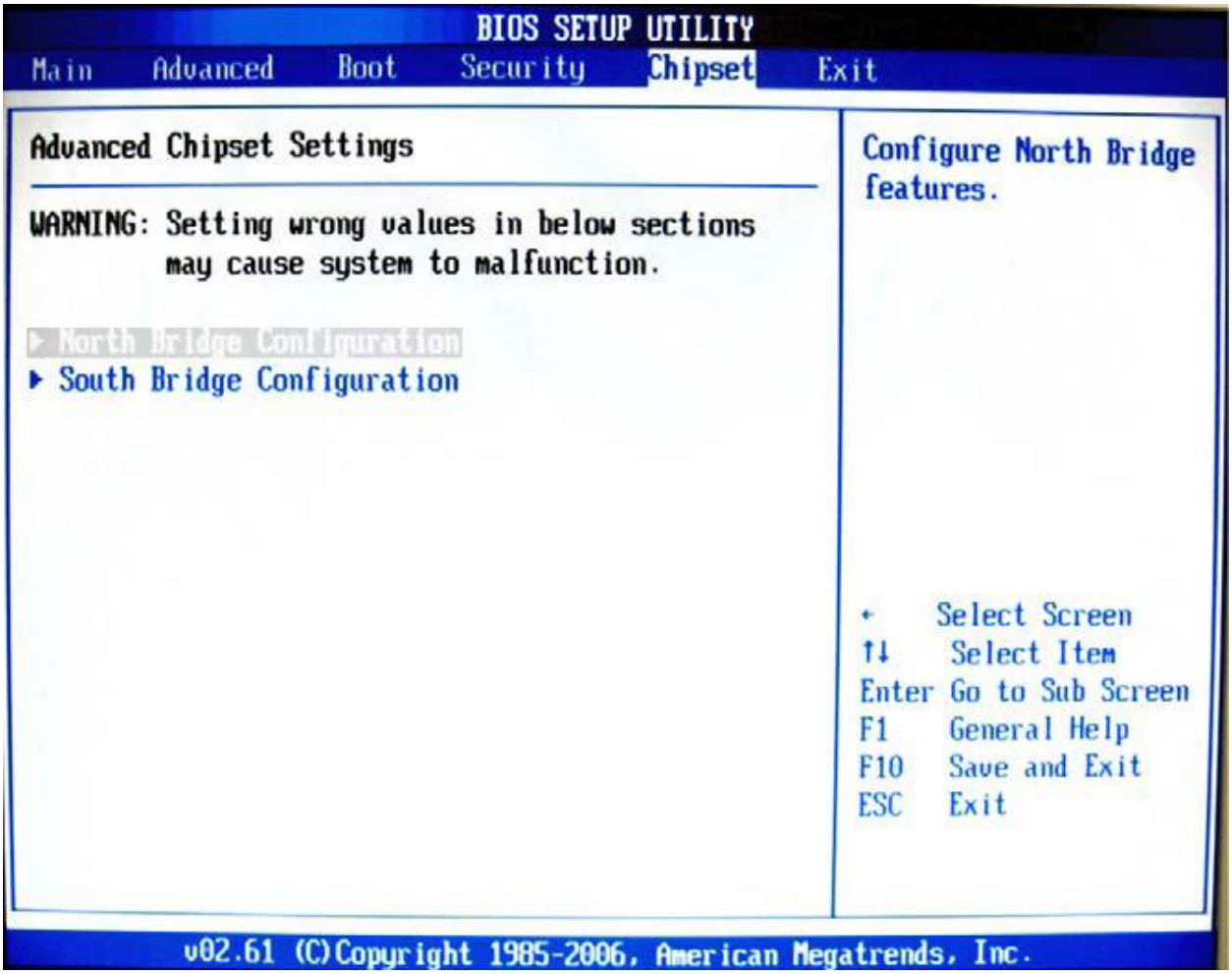
Security



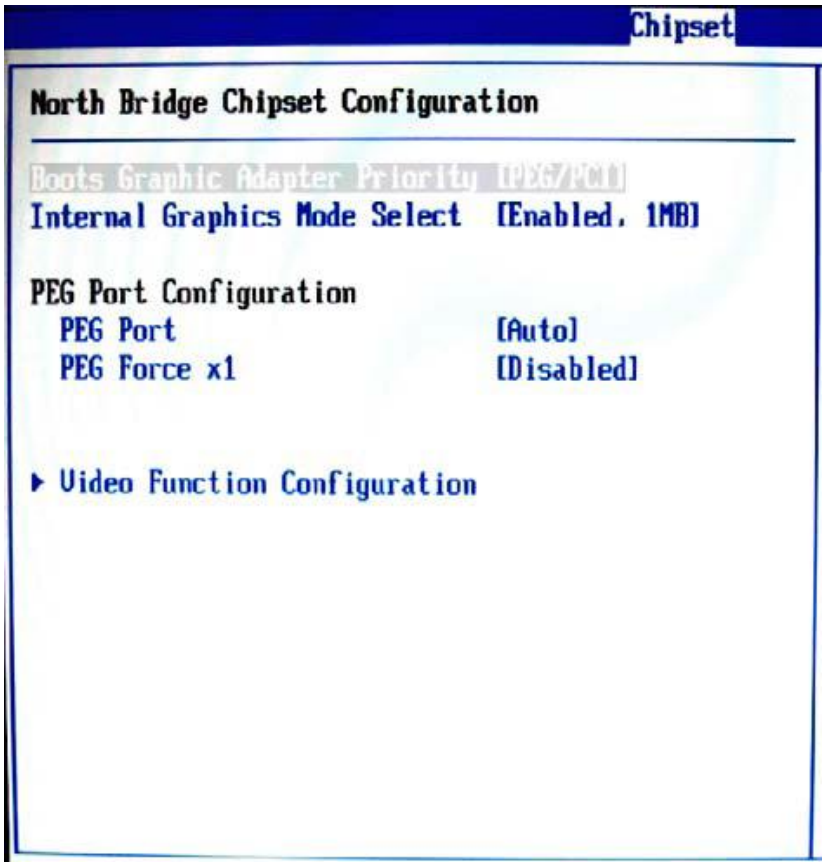
Supervisor Password / Change Supervisor Password
Supervisor Password controls access to the BIOS Setup utility. These settings allow you to set or change the supervisor password.

User Password / Change User Password
User Password controls access to the system at boot. These settings allow you to set or change the user password.

Chipset


BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

North Bridge Configuration



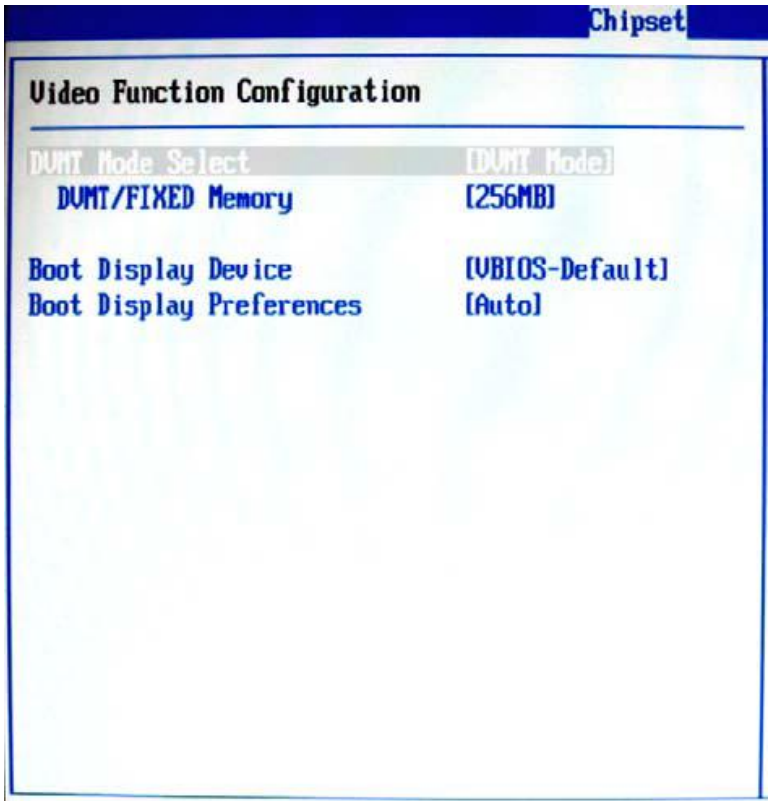
Boot Graphics Adapter Priority
This item specifies which VGA card is your primary graphics adapter.

Internal Graphics Mode Select
The field specifies the size of system memory allocated for video memory.

PEG Port
This setting allows you to select whether to use the onchip graphics processor or the PCI Express card. When set to [Auto], the BIOS checks to see if a PCI Express graphics card is installed. If it detects that a PCI Express graphics card is present, the motherboard boots up using that card. Otherwise, it defaults to the onboard graphics processor.

PEG Force X1
This BIOS feature allows you to convert a PCI Express X4 slot into a PCI Express X1 slot.
When [Enabled], the PCI Express X4 slot will be forced to run in the PCI Express X1 mode.
When [Disabled], the PCI Express X4 slot will be allowed to run in its normal PCI Express X4 mode.
If you have a PCI Express X4 card installed in your system, you should disable this BIOS feature. This allows for optimal performance of the card by ensuring maximum transfer rates between the card and the motherboard. But if you need to install a PCI Express X1 card into the PCI Express X4 slot, you should enable this BIOS feature to ensure maximum compatibility.

Video Function Configuration



DVMT Mode Select
Intel's Dynamic Video Memory Technology (DVMT) allows the system to dynamically allocate memory resources according to the demands of the system at any point in time. The key idea in DVMT is to improve the efficiency of the memory allocated to either system or graphics processor. It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

DVMT/FIXED Memory
When set to DVMT/FIXED Mode, the graphics driver will allocate a fixed amount of memory as dedicated graphics memory, as well as allow more system memory to be dynamically allocated between the graphics processor and the operating system.

Boot Display Device
Use the field to select the type of device you want to use as the display(s) of the system.

Flat Panel Type
This setting allows you to set your preferences for the flat panel display device.

South Bridge Configuration

USB Functions
This setting specifies the function of the onboard USB controller.

USB 2.0 Controller
Set to [Enabled] if you need to use any USB 2.0 device in the operating system that does not support or have any USB 2.0 driver installed, such as DOS and SCO Unix.

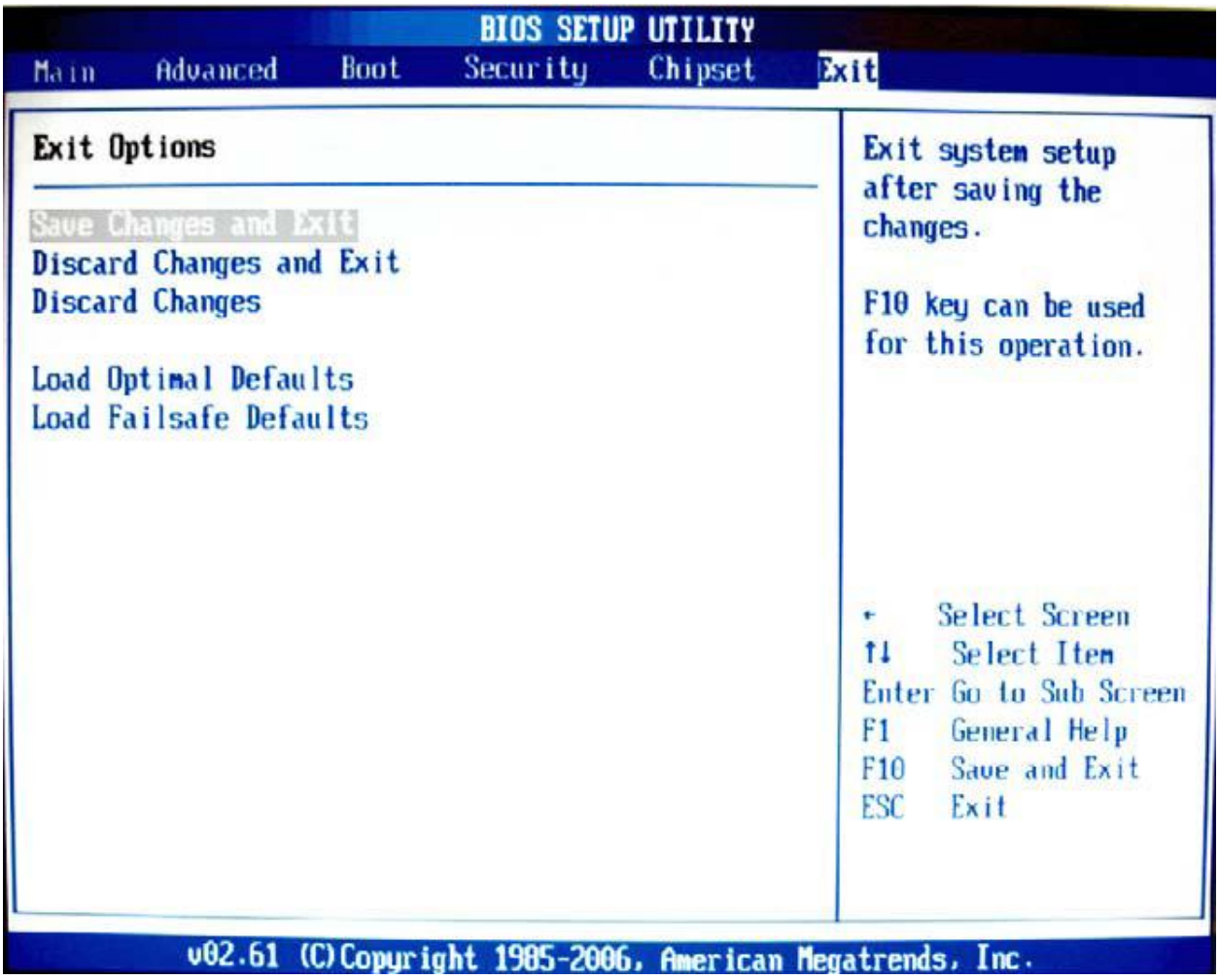
GbE Controller
This setting disables/enables the onboard Gigabit Ethernet controller.

GbE LAN Boot
When [Enabled], the BIOS attempts to boot from a LAN boot image before it attempts to boot from a local storage device.

GbE Wake Up From S5
This field specifies whether the system will be awakened from the S5 power saving mode when activity or input signal of onboard LAN is detected.

HDA Controller
This setting controls the High Definition Audio interface integrated in the Southbridge.

Exit


BIOS SETUP UTILITY
Main Advanced Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

Save Changes and Exit
Save changes to CMOS and exit the Setup Utility.

Discard Changes and Exit
Abandon all changes and exit the Setup Utility.

Discard Changes
Abandon all changes and continue with the Setup Utility.

Load Optimal Defaults
Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

Load Failsafe Defaults
Use this menu to load the default values set by the BIOS vendor for stable system performance.